

## Non-breeding Birds of Pointe Géologie Archipelago, Adélie Land, Antarctica

T. THOMAS & V. BRETAGNOLLE

CEBAS-CNRS, Beauvoir -Sur- Niort, 79360, France

Emu 88, 104-106

Received 23 April 1987, accepted 17 December 1987

Although frequently treated as anecdotal information, observation and counting of visiting birds may be valuable, especially in the Antarctic where there are few sets of good information (Watson *et al.* 1971; Ainley *et al.* 1978). These observations, even if marginal, can indicate at-sea distributional boundaries of little known species. Banded birds also provide useful indications of origin or movements. For species that may be expanding their geographical ranges the visitors can be considered as pioneers. This paper presents the observations made at Pointe Géologie and in-shore waters for species that do not breed there.

### Study area and methods

This work was done at the French permanent base (66°39'S and 140°01'E) on the Pointe Géologie archipelago. It has a narrowest width of sea ice (for example, 230 km in September 1985), though this may vary from year to year (700 km in September 1984). Sea ice appears in March and does not break until December-January. Polynias (vast areas of water inside the sea ice) frequently occur during the winter. Beyond the continent, there is no land within a radius of 1000 km (Fig. 1). Eight bird species breed there (see Thomas 1986 for a review).

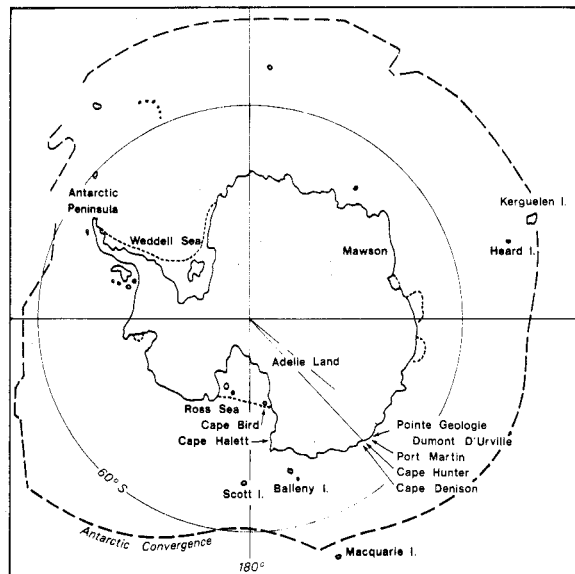


FIGURE 1 Antarctic continent, showing localities cited in the text.

Since 1976 all visiting birds over-wintering each year have been systematically counted by biologists. Data from Prevost & Mougins (1970) complement this information. To quantify the numbers of offshore species, observations of ten minutes duration were made daily, from 15 December 1983 to 15 March 1984 and from 1 December 1984 to 27 February 1985. These observations were made from the coast, on a promontory 40 m above sea level. A telescope (30x) or binoculars (10x) were used. The telescope scanned the sea across an area of 2 to 4 km offshore, the distance at which most birds were passing (see below). At least one observation was made each day, and this was increased to one an hour during large scale bird movements and unusual meteorological conditions.

### Results

King Penguin *Aptenodytes patagonicus*: five recorded for Adélie Land since 1952: one bird observed at Dumont d'Urville in 1965 (Falla & Mougins 1979); one bird on 11 January 1981, same locality; one bird moulting from 13 February to 8 March 1981, same locality; one bird found dead at Port Martin, on 11 January 1986; one bird on 19 January 1986, moulting, at Dumont d'Urville.

Chinstrap Penguin *Pygoscelis antarctica*: sighted 40 times between 1976 and 1986. Most sightings occurred in January, during the moult. Earliest and latest dates are 26 December and 1 April.

Royal Penguin *Eudyptes crysolophus schlegeli*: regular visitor to Adélie Land between 1952 and 1969 (Jouanin & Prevost 1953; Prevost & Mougins 1970). At least seven more records have been added between 1976 and 1986, all of them at Dumont d'Urville: one found dead on 24 February 1980; one observed moulting on 31 January 1984; five birds or more, three of them together, moulting in February 1985.

Light mantled Sooty Albatross *Phoebastria palpebrata*: two records, seen from the coast on 17 February 1984 of single birds approximately 4 km offshore. Five other records have been reported at sea between Dumont d'Urville and Cape Denison (on 3 February 1985 and 17-18 January 1986), all of them less than 10 km, from the coast.

Antarctic Petrel *Thalassoica antarctica*: regular visitor to Adélie Land (Prevost & Mougins 1970). Between 1976 and 1986 it was observed largely in April and May, and from September to December. June to November sightings are

of birds flying over polynias, together with Snow Petrels *Pagodroma nivea* in 80% of cases. Sightings from December, January, April and May are of birds flying over the land, especially over petrel colonies (Cape Pigeon *Daption capense*, Antarctic Fulmar *Fulmarus glacialis* and Snow Petrel). Antarctic Petrels were virtually absent from January to March.

Mottled Petrel *Pterodroma inexpectata*: this species was only observed offshore, during the summer of 1984, 1985 and 1986 and each year arrived in late January and departed in early February. Peak numbers occurred when there were local, strong catabatic winds (21 to 24 m/s) from east to south-east, and low to very low visibility. Usually, the birds were alone, sometimes in pairs (25% of cases). We never saw big flocks, as described by Falla (1937), though they were occasionally plentiful (33 birds in ten minutes on 29 January 1985). We estimate the total movement at about 5000 birds in 13 days (each year), flying within 10 km of the coast.

Brown Skua *Catharacta skua lonnbergi*: this is a regular visitor to Adélie Land (Prevost & Mougin 1970). Between 1976 and 1986, it was recorded each year (earliest and latest dates 17 October and 1 March; maximum number: four birds). In fact, one or two individuals are permanently present at Dumont d'Urville between December and January. In the last ten years, 22 birds have been banded. Of them, five have been resighted at least once, and three bred at least once (hybridisation with McCormick Skua *Catharacta maccormicki*) and one in three consecutive years.

Kelp Gull *Larus dominicanus*: four records, totalling five birds, all at Dumont d'Urville: one adult in December 1968 (Prevost & Mougin 1970); one adult on 13 January 1979; one adult on 3 November 1982; one adult from 16 October 1985 to 20 February 1986 and another from 15 November 1985 to 17 January 1986.

Other species: an unidentified shearwater (*Puffinus* spp.), either Sooty *Puffinus griseus* or Short-tailed *P. tenuirostris*, was seen twice (1984 and 1985). Terns, either the Arctic *Sterna paradisaea* or Antarctic Tern *S. vittata* were sighted four times. We saw a penguin that may have been the Macaroni Penguin *Eudyptes chrysolophus*, in March 1981.

## Discussion

Light mantled Sooty Albatross, Mottled Petrel and the Shearwater spp. are the three southern-most seabirds observed at sea between Tasmania and Adélie Land (Bretagnolle & Thomas in press). The sightings of these species at Dumont d'Urville, favoured by unusual meteorological conditions such as storms, would therefore reflect only their presence just off the continent. According to Falla (1937), Nakamura (1982) and Ainley *et al.* (1984), the Mottled Petrel is not capable of crossing pack-ice. How-

ever, on several occasions we have seen this species in large polynias, suggesting they are able to go through heavy pack-ice. We have no such records for the other two species.

Penguins have already been recorded in sites other than Adélie Land. The Macaroni Penguin was seen at Mawson Station in the Australian sector (Merilees 1970), at Cape Hallett (in Watson *et al.* 1971) and at Balleny Islands (Robertson *et al.* 1980). Interestingly enough, these records concern only a partial sector of the continent, apparently opposite to Macquarie Island, although the nominate subspecies is missing there (Rounsevell & Brothers 1984). The closest breeding colony is on Heard Island. Similarly, the Chinstrap Penguin has been recorded relatively frequently in Antarctica (eight localities at least in Watson *et al.* 1971). Most of them, however, are in the Indian Ocean sector, while the major breeding colonies are on the opposite side of the continent (Croxall *et al.* 1984), and only a few pairs breed at Balleny Islands (Robertson *et al.* 1980) and at Heard Island (Harrison 1983). As the populations of both these species are increasing very rapidly (Conroy 1975; Croxall & Prince 1979), the occurrence of sightings outside the breeding area might concern 'pioneer individuals' of expanding populations. Conversely, King and Royal Penguins have been recorded in Antarctica only in Adélie Land. These two species are breeding at Macquarie Island in high numbers, respectively 70 000 and more than 1 000 000 pairs (Rounsevell & Brothers 1984). Dumont d'Urville is the closest permanently occupied base to Macquarie Island, which could explain such a restricted distribution of visitor records. Lastly, the Rockhopper Penguin has never been recorded in Antarctica, though approximately 100 000 pairs are breeding at Macquarie Island (Rounsevell & Brothers 1984). This probably reflects a more subantarctic and subtropical distribution at sea than Macaroni Penguin (Enticott 1986), in common with the distribution of their breeding colonies.

The Kelp Gull breeds on the Antarctic Peninsula (Watson 1971; Croxall *et al.* 1984). It has been recorded on several occasions in Antarctica: the Australian sector (Johnstone & Murray 1972; Johnstone *et al.* 1973), Cape Hallett (Derksen 1975), Cape Bird (Sagar 1976), and in the Ross sea sector (Watson *et al.* 1971). This species (as the Brown Skua, below) is especially attracted by land, and particularly to human bases where there is scavengeable food. The Brown Skua also breeds in the Antarctic Peninsula (Croxall *et al.* 1985), and in small numbers on Balleny Islands (Robertson *et al.* 1980). It has been recorded in the Australian sector (Johnstone *et al.* 1973), and in the Ross sea sector (Ainley *et al.* 1978). In Adélie Land, as well as being frequently observed, it is known to breed occasionally. The high rate of resighted birds (nearly 20%) indicates that the Brown Skua is not a wanderer to this sector. Hybridisation has occurred at least six times in ten years (and is not restricted to Adélie Land). A Brown Skua pair

has attempted to breed only once, but without success. Adélie Land sector thus appears to be an extreme boundary for the breeding distribution, where reproduction is often hybrid. This must be related to the fact that the sector has a particularly mild climate for Antarctica.

In contrast to the latter two species, terns are not especially attracted by land but rather by loose pack-ice (Ainley *et al.* 1984). Adélie Land is obviously outside the main wintering quarters of the species, known to be in the Weddell sea sector (Zink 1981) and the Ross sea sector (Ainley *et al.* 1984).

The Antarctic Petrel is a particular case as it breeds close to Dumont d'Urville, at Cape Hunter (Falla 1937; pers. obs.), 120 km east of Pointe Géologie. It is also both a winter and summer visitor. Winter visitors come more frequently when large polynias are present, searching for food in company with Snow Petrels. The winter sightings vary according to years and especially sea ice conditions: in 1985, several polynias occurred from May to November and sightings were frequent. In 1984, there were no polynias and consequently no Antarctic Petrels. Summer visitors are nonbreeders and they come each year. They come in November to December, at night, and in March-April, which coincides exactly with the presence of nonbreeders of three related species, Snow Petrels, Cape Pigeons and Antarctic Fulmars (Bretagnolle unpubl.).

### Acknowledgements

This work has been carried out in the Antarctic Birds and Mammals Research Group, directed by P. Jouventin, and supported logistically and financially by the *Expéditions Polaires Françaises, Terres Australes et Antarctiques Françaises* and RCP 764 CNRS. We thank the biologists who over-wintered from 1976 to 1983. Lastly, we thank P. Jouventin, P. Doncaster, J.-L. Mougin and H. Weimerskirch for reading early drafts of the paper. P. Doncaster translated the manuscript in English, L. Ruchon drew the figure and C. Derbord typed the manuscript.

### References

- Ainley, D.G., Wood, R.C. & Sladen, W.J.L. (1978). Bird life at Cape Crozier, Ross Island. *Wilson Bull.* **90**, 492-510.
- Ainley, D.G., O'Connor, E.F. & Boekelheide, R.J. (1984). The marine ecology of birds in the Ross sea, Antarctica. *Ornithol. mono.* **32**, 1-97.
- Bretagnolle, V. & Thomas, T. (in press). Seabird distribution between Tasmania and Adélie Land (Antarctica) and comparison with nearby Antarctic sectors. *Emu*.
- Conroy, J.W.H. (1975). Recent increases in Penguin populations in Antarctica and the Subantarctic. In: *The Biology of Penguins* (ed. B. Stonehouse) pp. 321-336. McMillan Press.
- Croxall, J.P. & Prince, P.A. (1975). Antarctic seabird and Seal monitoring studies. *Polar Record* **123**, 573-595.
- Croxall, J.P., Prince, P.A., Hunter, I., McInnes, S.J. & Copestake, P.G. (1984). The seabirds of the Antarctic Peninsula, Islands of Scotia sea, and Antarctic continent between 80°W and 20°W: their status and conservation. In: *Status and Conservation of the World's Seabirds*, pp. 637-666. ICBP Technical Publication No. 2., Cambridge.
- Derksen, (1975). Southern Black-backed Gull *Larus dominicanus* at Cape Hallett, Antarctica. *Notornis* **23**, 251-252.
- Enticott, J. W. (1986). Distribution of Penguins at sea in the south eastern Atlantic and south western Indian oceans. *Comorant* **13**, 118-142.
- Falla, R.A. (1937). Birds. BANZARE Report. B 2, 1-304.
- Falla, R.A. & Mougin, J.-L. (1979). Order Spheniciform. In: *Checklist of the Birds of the World*. Vol. 1, 2nd edn, (eds E. Mayr & Cottrell) pp. 121-134. Cambridge, Mass.
- Harrison, P. (1983). *Seabirds, an Identification Guide*. Croom Helm, London and Sydney.
- Johnstone, G.W., & Murray, M.D. (1972). Dominican gulls in Australian Antarctic Territory. *Aust. Bird Bander* **10**, 59-60.
- Johnstone, G.W., Lugg, D.J. & Brown, D.A. (1973). The biology of the Vestfold Hills, Antarctica. ANARE Sc. Rep. Ser. B. Publ. 123.
- Jouanin, C., & Prevost, J. (1953). Captures de Manchots innatendues en Terre Adélie et considérations systématiques sur *Eudyptes c. + schlegeli* Finsch. *L'Oiseau et la RFO* **23**, 281-287.
- Merilees, W.J. (1970). A record of the Macaroni Penguin for Australian Antarctic. *Emu* **70**, 88.
- Nakamura, K. (1982). Distribution of gadfly Petrels of the genus *Pterodroma* in the Antarctic and Subantarctic regions of the Australian sector, austral summer 1981. *Trans. Tokyo Univ. Fisch* **5**, 203-211.
- Prevost, J., & Mougin, J.L. (1970). *Guide des Oiseaux et des Mammifères des Terres Australes et Antarctiques françaises*. Neuchâtel, Delachaux et Niestlé.
- Robertson, C.J.R., Gilbert, J.R. & Erickson, A.W. (1980). Birds and Seals of the Balleny Islands, Antarctica. *Nat. Mus. N.Z. Rec.* **1**, 271-279.
- Rounsevell, D.E., & Brothers, N.P. (1984). The status and Conservation of seabirds at Macquarie Island. In: *Status and Conservation of the World's seabirds*, pp. 587- 592. ICBP Technical Publication No. 2, Cambridge.
- Sagar, P. (1976). Southern black back Gull at Cape Bird, Antarctica. *Notornis* **23**, 356.
- Thomas, T. (1986). L'effectif des Oiseaux nicheurs de l'archipel de Pointe Géologie (Terre Adélie) et son évolution au cours des trente dernières années. *L'Oiseau et la RFO* **56**, 349-368.
- Watson, G.E., Angle, J.P., Harper, P.C., Bridge, M.A., Schlatter, R.P., Tickell, W.L.N., Boyd, J.C. & Boyd, M.M. (1971). Birds of the Antarctic and Subantarctic. Antarctic Map Folio Series, Folio 14, American Geographical Union, New York.
- Zink, R.M. (1981). Observations of seabirds during a cruise from Ross Island to Anvers Island, Antarctica. *Wilson Bull.* **93**, 1-20.